

METHOD OF MANUFACTURING AN OPTICAL CORE**ABSTRACT OF THE DISCLOSURE**

Embodiments of the present invention provide a highly uniform low cost production worthy solution for manufacturing low propagation loss optical waveguides on a substrate. The method comprises depositing an optical core using a high-density plasma deposition process. The method is particularly advantageous in forming high contrast refractive index optical cores, such as SiO_xN_y , with drastically reduced propagation loss. In one embodiment the high-density plasma deposition process is an HDP-CVD process. In another embodiment the high-density plasma deposition process is an HDP-ECR process. In one embodiment, a method of forming an optical waveguide comprises forming at least one optical core on an undercladding layer of a substrate using a high-density plasma deposition process.

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